

[CLAIMS]

1. A positive-working lithographic printing plate precursor comprising (i) a grained and anodized aluminum support having a hydrophilic surface and (ii) a heat-sensitive oleophilic coating provided on the hydrophilic surface, wherein said coating comprises (a) a hydrophobic polymer which is soluble in an aqueous alkaline developer and (b) a dissolution inhibitor which is a water-repellent polymer and wherein said coating is capable of dissolving in said developer at a higher dissolution rate in areas of said coating which are exposed to heat or infrared light than in unexposed areas, characterized in that the hydrophilic surface has a surface roughness, measured according to ISO 4288 and expressed as arithmetical mean center-line roughness R_a , which is less than $0.40\text{ }\mu\text{m}$ and the hydrophilic surface comprises a salt of titanium, hafnium or zirconium.
2. A plate precursor according to claim 1, wherein said salt comprises fluoride.
3. A plate precursor according to any of preceding claims, wherein said hydrophilic surface further comprises an orthophosphate.
4. A plate precursor according to any of preceding claims wherein said hydrophilic surface has a surface roughness, expressed as arithmetical mean center-line roughness R_a , which is less than $0.3\text{ }\mu\text{m}$.
5. A plate precursor according to any of preceding claims wherein said aluminum support comprises more than 3.0 g/m^2 of aluminum oxide at the hydrophilic surface.
6. A plate precursor according to any of preceding claims wherein said aluminum support comprises more than 4.0 g/m^2 of aluminum oxide at the hydrophilic surface.

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7. A plate precursor according to any preceding claim wherein said water-repellent polymer is
- a polymer comprising siloxane and/or perfluoroalkyl units; or
 - a block- or graft-copolymer of a poly(alkylene oxide) block and
- 5 a block comprising siloxane and/or perfluoroalkyl units.
8. A plate precursor according to any preceding claim wherein said water-repellent polymer is present in a separate layer on top of said coating.
9. A plate precursor according to any preceding claim wherein said
- 10 coating further comprises another dissolution inhibitor which is an organic compound comprising an aromatic group and a hydrogen bonding site.
10. A plate precursor according to any preceding claim wherein said coating further comprises a dissolution accelerator.
- 15 11. A method of making a positive-working lithographic printing plate precursor comprising the steps of
- graining and anodizing an aluminum support,
 - treating said grained and anodized aluminum support with a solution comprising a salt of titanium, hafnium and zirconium,
- 20 - applying on said treated aluminum support a heat-sensitive oleophilic coating,
- wherein said coating comprises (a) a hydrophobic polymer which is soluble in an aqueous alkaline developer and (b) a dissolution inhibitor which is a water-repellent polymer,
- 25 wherein said coating is capable of dissolving in said developer at a higher dissolution rate in areas of said coating which are exposed to heat or infrared light than in unexposed areas,
- wherein the surface of said grained and anodized aluminum support is hydrophilic and has a surface roughness, measured according to
- 30 ISO 4288 and expressed as arithmetical mean center-line roughness R_a , which is less than 0.40 μm .

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12. A method of making a positive-working lithographic printing plate comprising the steps of
- providing a positive-working lithographic printing plate precursor according any of claims 1 to 10,
 - 5 - image-wise exposing said heat-sensitive coating to infrared light or heat,
 - developing said image-wise exposed heat-sensitive coating with an aqueous alkaline developer, wherein the exposed areas of said coating dissolve in said alkaline developer at a higher
 - 10 dissolution rate than in unexposed areas of said coating.
13. Use of a grained and anodized aluminum support having a hydrophilic surface which is characterized by a surface roughness, measured according to ISO 4288 and expressed as
- 15 arithmetical mean center-line roughness Ra, which is less than 0.40 μm , and which comprises a salt of titanium, hafnium or zirconium,
- in a positive-working lithographic printing plate precursor comprising a heat-sensitive oleophilic coating provided on the hydrophilic surface, wherein said coating comprises (a) a
- 20 hydrophobic polymer which is soluble in an aqueous alkaline developer and (b) a dissolution inhibitor which is a water-repellent polymer and wherein said coating is capable of dissolving in said developer at a higher dissolution rate in
- 25 areas of said coating which are exposed to heat or infrared light than in unexposed areas,
- for increasing the run length in a printing process after exposing and developing of said printing plate precursor.
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